Threemile Restoration and Resiliency Project
Review and Consideration of Other Science/Literature Submitted by the Public
During the 30-Day Notice and Comment Period

Members of the Threemile Restoration and Resiliency Project interdisciplinary team are considered proficient in their field of study by way of academic achievement, agency training, years of professional experience, and in some cases, certification programs. Team specialists identified methods used in their analyses and referenced scientific sources upon which their analyses were based. Refer to the *Literature* and/or *References Cited* sections in each of the respective resource specialist reports: Cultural Heritage at p.28; Economics at p. 11; Fire & Fuel Management at pp. 63-65; Rangeland and Noxious Weeds at p. 20; Sensitive Plants at pp. 6-7; Silviculture/Forest Vegetation at 95-100; Soils at pp.24-25; Water at pp.33-36; and, Wildlife at pp. 39-40). In their analyses, team specialists discussed responsible opposing science and viewpoints and provided science-based rationale to support their conclusions. Additionally, they addressed any incomplete or unavailable information.

The following opposing science and viewpoints were submitted by Mr. Dick Artley who regularly comments on vegetation management projects on the Custer Gallatin National Forest as well as many other national forests across the nation. Since 2009, Mr. Artley's comments have included an extensive list of numbered attachments; nine separate attachments were received for Threemile Restoration and Resiliency Project. The title of each attachment consists of a general statement or viewpoint that is followed by 6 to 99 individual quotes (depending on the Attachment #), often taken out of context, from various newspapers, editorials, magazines, scientific papers and other publications that presumably Mr. Artley believes support the title statement. Individual quotations are followed by electronic links to the source documents, some of which are broken or no longer valid. Regardless, the quotations are not tied to specific proposed actions, as suggested under 40 CFR 1503.3(a) and 36 CFR 218.2. Rather, they are individual statements gathered together to support a general point of view or position. For numerous projects since 2009, interdisciplinary teams have been responding to all of the quotations in each attachment submitted during project comment periods.

In conclusion, we have reviewed the submitted attachments and still stand by the analysis in the EA, as, unlike the attachments, it focuses on the site specific cause-effect relationships of the alternatives for each resource area considered in detail. The following summarizes each submitted attachment.

Attachment #1

"The Following Compelling, Indisputable Science Reveals Timber Harvest Activities Will Inflict Major, Tragic Damage to the Natural Resources in and Downstream from the Sale Area. The Cutting Units and New Roads will also Harm the Recreational Opportunities and Scenery.

"The experts' statements below are clear and to the point. USFS employees are taught by the agency that logging is natural resource benign and will solve most problems in the forest, real or cooked up. Of course this is untrue. A few USFS specialists understand this … yet they choose to play the game to avoid jeopardizing their jobs.

"The following "Opposing Views" present scientific information that disproves the USFS claim that logging benefits the natural resources in the forest. These "Opposing Views" are subject to 40 CFR 1502.9(b). The views are not irresponsible and they weren't adequately discussed or considered in this NEPA document.

Dick Artley (30 day notice and comments submitted for Threemile Restoration and Resiliency Project)

Timber Harvest Opposing View #1 (previously opposing view #38): "We concluded that commercial timber sales do not meet the criteria for forest restoration." (Pg. 1)

Long, Richard D., U.S. Department of Agriculture Office of Inspector General. Western Region Audit Report: Forest Service National Fire Plan Implementation. Report No. 08601-26-SF, November 2001.

FS Response: The citation pertains to the use of National Fire Plan funds to restore and rehabilitate watersheds that were severely burned by wildfires in 2000. This has no relevance to the Threemile Restoration and Resiliency Project.

Timber Harvest Opposing View #2 (previously opposing view #44): "Biodiversity in managed ecosystems is poor. Less biodiverse communities and ecosystems are more susceptible to adverse weather (such as drought) and exotic invaders and have greatly reduced rates of biomass production and nutrient cycling."

V. O'Neill, Harold A. Mooney, Osvaldo E. Sala, Amy J. Symstad, and David Tilman. Biodiversity and Ecosystem Functioning: Maintaining Natural Life Support Processes. Issues in Ecology No. 4. Fall 1999.

FS Response: First quoted paragraph is not found in the referenced document, which is a report on a "*consensus reached by a panel of twelve scientists chosen to include a broad array of expertise*." The report suggests that "*reductions in biodiversity can alter both the magnitude and the stability of ecosystem processes, especially when biodiversity is reduced to the low levels typical of many managed systems*." The introduction of the document states, "*On local and regional scales, biodiversity declines are already pronounced in many areas, especially where natural ecosystems have been converted to croplands, timber plantations, aquaculture and other managed ecosystems. The diversity of these managed ecosystems is often low, and species composition very different, compared with those of the natural systems they have replaced*."

- The cited article is not specific to forest management. It generally discusses the effects of local and global biodiversity on ecosystem processes. The Threemile Restoration and Resiliency Project will not reduce biodiversity or ecosystem function. Rather, the purpose of the project is found at pages 3-8 in the EA, and briefly described below:
- Restore ponderosa pine ecosystems towards a more heterogeneous forested landscape with a diverse age and size structure (including old growth), understory structure and composition, patch size, and pattern that are resilient to natural disturbances (e.g. fire, insect/disease, climate change).
    - Promote ponderosa pine.
    - Within the project area, make progress changing the fire regime from low frequency high intensity towards one of higher frequency and lower intensity. This is discussed in some detail in the Ashland Post Fire Landscape Assessment 2014 and helps in understanding fire's role on the landscape (pp. 40 and 41).
- Lessen the potential spatial extent and intensity of disturbances (such as high intensity wildfire and high mortality from beetles. Reduce fuel loads to enhance fire suppression capabilities by modifying fire behavior in the Threemile Restoration and Resiliency project area.
- Use the values at risk identified in the Powder River Wildfire Protection Plan (PRWPP, 2016) to help in the planning of vegetation management treatments on NFS lands.
- Provide wood products to contribute to employment and industry in local communities and help support the sustainable supply of timber from National Forest System lands.

- Manage to maintain or improve long-term diversity and quality of habitat for Management Indicator Species (MIS) and selected species as identified in the Forest Plan (such as whitetail deer, mule deer, and grouse);
    - Provide habitat diversity, including habitats associated with standing snags, down wood, non-forested grasslands, shrub-lands, and deciduous woodlands and meet key habitat characteristics for goshawk, whitetail deer, western king bird, and big game

Timber Harvest Opposing View #3 ""Late last year a court found the Forest Service in violation of the National Environmental Policy Act for failing to properly address the impacts of logging in roadless areas within the footprint of the 2014 French fire. The court sent the Forest Service back to the drawing board, but the Service has now issued yet another decision authorizing the same logging it had illegally approved. The Center will head back to court to ask that the existing prohibition against logging remains in place, especially given the presence of West Coast fishers."

"It's appalling to see the Forest Service allowing important wildlife habitat to be destroyed, especially in a roadless area," said Justin Augustine, an attorney with the Center for Biological Diversity. "Roadless areas represent some of the last, best places for wildlife like fishers to survive. The Forest Service needs to be protecting these places, not logging them."

Forest Service Approves Habitat Destruction in Sierra Nevada Roadless Area---*Decision Allows Post-fire Logging in Habitat Occupied by Rare West Coast Fishers.* Published by the Center for Biological Diversity, April 29, 2016.

FS Response: In the EA on page 2, we noted that "The project area is not located within or adjacent to any roadless areas analyzed in the Roadless Area Conservation; Final Rule (*36 CFR Part 294, Special Areas; Roadless Area Conservation, Final Rule)*, the Forest Plan FEIS, Appendix C (USDA 1986), or Roadless Area Resource Evaluation (RARE II, 1979). There are three roadless areas on the District, none occur in the project area, and are located approximately 7 to 15 air miles to the northwest and west of the project area." The cited literature is not specific or relevant to Threemile Restoration and Resiliency Project proposal and Environmental Assessment (EA).

Timber Harvest Opposing View #4. "In response to the changes described above, the timber industry and the Forest Service have sought to find new justifications for taxpayer-subsidized logging on public lands. In particular, they have tried to emphasize concerns over forest fire, contending that more logging should be used to prevent fire, even though logging actually often leaves forest areas more fire-prone. These calls for more logging have been tied to claims that there is too much fire in forests."

Hanson, Chad, Ph.D. "**National Forest Protection**" *Environment Now* (see picture on last page).

FS Response: The picture on the last page is titled "An example of SPI's (Sierra Pacific Industries) extensive clearcutting in Calaveras County." Photo courtesy of Ebbetts Pass Forest Watch. If true, that would place these clearcuts in the central Sierra Nevada. SPI's web page notes that "Sierra Pacific Industries is based in Anderson, California. The company owns and manages nearly 1.9 million acres of timberland in California and Washington, and is among the largest lumber producers in the United States." https://www.spi-ind.com/Home/AboutUs. SPI is a private landowner of forest lands. The cited literature is not specific or relevant to Threemile Restoration and Resiliency Project EA. Neither the Scoping document, EA, nor the Forest Vegetation Report use the term clearcut or propose to use clearcut as a treatment for the Threemile Restoration and Resiliency Project. Rather, treatments are identified as Regeneration Treatments, and are defined as a type of treatment that removes all trees except those needed for the purposes of seed production. See Forest Service Response to NEC/AWR Scoping comments #10, 11, #17, #24, and 25, as well as Forest Service Response to NEC/AWR Comment #10.

Timber Harvest Opposing View #5 (previously #70): "Logging equipment compacts soils. Logging removes biomass critical to future soil productivity of the forest. Logging disturbs sensitive wildlife. Logging typically requires roads and skid trails which create chronic sources of sedimentation that degrades water quality and aquatic organism habitat. Logging roads and skid trails are also a major vector for the spread of weeds. Logging disrupts nutrient cycling and flows. Logging can alter species composition and age structure (i.e. loss of old growth). Logging can alter fire regimes. Logging can change water cycling and water balance in a drainage. The litany of negative impacts is much longer, but suffice it to say that anyone who suggests that logging is a benefit or benign is not doing a full accounting of costs."

Those who suggest that logging "benefits" the forest ecosystem are using very narrow definitions of "benefit." Much as some might claim that smoking helps people to lose weight and is a "benefit" of smoking."

Wuerthner, George "*Who Will Speak For the Forests*?" NewWest, January 27, 2009.

FS Response: The cited article is opinion commentary. The Threemile Restoration and Resiliency Project EA and resource specialist reports in the project record describe potential effects of proposed timber harvest on soils (EA, at pages 86-94 and the Soil Report in the project record); wildlife (EA, at pages 57-71 and the Wildlife Report in the project record); water quality, peak flows, and water yield, (EA, at pages 72 -86 and the Water Resources Report in the project record); rangeland management and noxious weeds (EA at pages 99-104 and the Rangeland Management and Noxious Weeds Report in the project record); fire and fuels (EA at pages 45-56 and the Fire & Fuel Management Report in the project record); transportation system (EA at 108-111 and the Transportation Specialist Report in the project record); forest vegetation (EA at pages 33-45 and the Forest Vegetation Report in the project record); cultural resources (EA at pages 104-108 and the Cultural Resources Report in the project record). Project design, best management practices, and resource protection measures will avoid or minimize potential effects. Harvest will not occur within old growth and coarse woody debris will be left within treatment units to maintain soil productivity and function. No old growth stands were found during field inventory (Sandbak, 2018C). However, small microsites (< 1 acre and generally less than 1/2 acre in size) were detected that met minimum attributes of old growth for age, diameter, and basal area (Greene et. al., 1992). (EA at page 19). Based on findings presented in the EA, the Forest Service has determined that the project will not have any significant impacts on the environment (Finding of No Significant Impact in the Decision Notice, pages 10-19). We recognize that many of the impacts described in the opinion piece may occur to a small degree; but the EA, DN, and FONSI adequately inform that these impacts are of a context and intensity that are minimal, acceptable, and meet the intent of all applicable laws, regulations and policies.

Timber Harvest Opposing View #6 (previously #57): "Logging simplifies forest ecosystems (Dudley et al 1995) by narrowing the age range of the stand and suppressing diversification through repeated harvesting, burning to remove slash, and replanting with hybrid seedlings. Simplification affects the health and productivity of the forest because simplified forests lack the variety found in older stands, including species diversity, vertical structure, and microhabitat. From an ecological standpoint, a simplified forest of a particular age has less overall bio-mass per acre than a natural forest of the same age, but a simplified forest produces a higher volume of merchantable timber."

Scott, Mark G. Forest Clearing in the Gray's River Watershed 1905-1996. A research paper submitted in partial fulfillment of the requirements for the degree of Master of Science in Geography Portland State University, 2001.

FS Response: The cited paper is a review of timber harvest activities over 90 years within the Gray's River watershed located in coastal southwest Washington. Nearly all the land within the Gray River watershed is owned by private timber companies. The paper discusses the use of clearcutting and loss of

old growth forests within the watershed. This article is not relevant to the Threemile Restoration and Resiliency Project in eastern Montana because the forest types, climate, and past harvest history are very different from that of the Gray's River watershed. See project area description, desired condition and purpose and need for the Threemile Restoration and Resiliency Project in the EA at pp. 2-7.

Timber Harvest Opposing View #7 (previously #3): "Timber harvest will remove dead and dying material from the site and inhibit the recruitment of downed woody material as time progresses. Timber harvest and associated reduced structural complexity and reduced age and size class diversity are all known to reduce population abundance and diversity of ants and a number of birds.

Aber John, Norman Christensen, Ivan Fernandez, Jerry Franklin, Lori Hidinger, Malcolm Hunter, James MacMahon, David Mladenoff, John Pastor, David Perry, Ron Slangen, Helga van Miegroet. 2000. Applying Ecological Principles to Management of the U.S. National Forests. Issues in Ecology 2000. No. 6.

FS Response: The cited article does not include the quotes supplied by the commenter. The quotes are instead from a document entitled "Can Logging Restore Our Forests – What Does the Science Say?" (http://okanogan1.com/community/unnatural/logging/Peterson-restoration-science.html) compiled by Mike Peterson of the Inland Empire Lands Council. The Forest Service response will address both the cited reference and the supplied quotes.

The paper by Peterson is a "list of reasons why logging may not restore our forests" with a variety of papers cited. Bull and Torgersen (1995) research in northeastern Oregon studied the relationship between downed logs, ants, and pileated woodpeckers and suggests that practices resulitng in inadequate down wood could affect pileated woodpecker populations and the beneficial role that foliage-foraging ants have in maintaining forest health. This paper is from a one-year study that was conducted in mixed conifer forest (77% grand fir, 8% Douglas-fir, 8% lodgepole pine, 5% western larch, and 2% lodgepole pine) functioning as old growth. The goal of this study was to determine if an old-structure stand with large amounts of mortality could be altered to accelerate regeneration and reduce fuel loads but still maintain its function as old growth for selected bird species, notably pileated woodpeckers which occupied the stand in the study area. Mention is made of the northern goshawk which did not occupy the stand. Treatments focused on removing small diameter trees and selection harvest of other species to maintain large diameter trees, and did not remove significant amounts of basal area, as the intent was to keep the old growth functionality of the stand. The authors present the results of the study but make no definitive recommendations and acknowledge further study is needed. The practice of leaving snags, down woody logs and maintaining large diameter trees for wildlife habitat will be applied in the Threemile Restoration and Resiliency Project (see Design Features Common to the Action Alternatives in the EA at pages 19-30; Wildlife specifically at pp. 23-25). This is not a salvage project and snags and canopy coverage will be maintained for bats, including northern long-eared bat (EA at 23, 26 and Wildlife Report at p. 21). There are no known northern long-eared bats or hibernacula in the project area, however there are design features to protect bat habitat. There is an active goshawk nest. Based on recommendations to maintain 240 acres per 5000-acre home range, the nesting habitat exceeds the recommendation for the size of the timbered area south of Threemile Creek. Within the 420 acre PFA, 79 acres would be commercially treated, 6 would be commercially treated and prescribed burned, and 66 acres of non-forested land would be prescribed burned totaling 151 acres of treatment. 29% of timbered stands within the PFA will be commercially treated reducing canopy cover and likely the availability of forested prey species (Table 7 in the Wildlife Report, project record).

One of the purposes of the Threemile Restoration and Resiliency Project is to restore ponderosa pine, including old growth. No old growth stands were found during field inventory (Sandbak, 2018C). However, small microsites (< 1 acre and generally less than 1/2 acre in size) were detected that met minimum attributes of old growth for age, diameter, and basal area (Greene et. al., 1992). One area was found in each of the following units: 8, 15, 25, 104, 175, and 180. Units 15 and 175 have no proposed

treatment in Alternative A and Unit 175 has no treatment in Alternative B. Units 8, 25, and 104 have commercial harvest proposed with no prescribed burning, Unit 180 has commercial harvest and prescribed burning under Alternative A. Under alternative B, units 8, 15, 25, and 104 have commercial harvest proposed with no prescribed burning, Unit 180 has commercial harvest and prescribed burning. Within these small areas in these units, trees $\geq$ to 17" dbh and $\geq$ 180 years old will be marked as leave trees to maintain the minimum old growth attributes. During implementation, the Silviculturist will be notified if any additional areas are detected. These areas will be assessed, and prescriptions modified to ensure old growth attributes are maintained. *Applicable to Units 8, 25, 104, and 180 in Alternative A and Units 8, 15, 25, 104, 175, and 180 under Alternative B.*

See Forest Service Response to NEC/AWR Scoping Comment #24, 25. Treatments identified in the scoping notice, EA and the Forest Vegetation Report are identified as Regeneration Treatments, and these are defined as a type of treatment that removes all trees except those needed for the purposes of seed production (Scoping notice, Table 1, page 9; EA, page 9). There are no clearcuts proposed. The overall intent for forest vegetation management is to change existing forest vegetation composition and structure to conditions that may be more resilient to disturbances such as outbreaks of pine beetles (MPB and engraver beetle) and wildfires, by creating variable densities of individual trees, providing for clumps and creating openings (ICO concept).

For commercial treatments and post-sale thinning design criteria in the EA provides for clumping of tree in the 5 to 9 inch class, scattered across the units based on where natural clumping of trees occur (EA p. 20). This clumping is also true for trees > 9inches (EA p. 20). Design criteria also provides for viable hiding cover within 75 feet of open roads or large openings will be retained where feasible (EA p. 24). Broadcast burning in ponderosa pine (no commercial harvest) has a management strategy for unburned mosaics.

For migratory birds, all treatments, the habitat of individual birds, breeding pairs, or family groups might be affected, but these effects (positive or negative) would be too minor (due to the size and distribution of affected areas) to have impacts to any species at the population level. Stands in the immediate vicinity of treatment units would provide habitat for species selecting for dense canopies. Treatment activities would promote a mosaic of structural stages and stand compositions in affected areas following treatment. Project design criteria would be implemented that would potentially reduce impacts by altering the season of the proposed activities (winter harvest versus summer implementation for a portion of the area), protecting known, long term breeding sites for key species. (Wildlife Report, page 36, project record).

Other quotations extracted from Peterson apply to ecosystems not found in the project area (i.e. maritime climate areas, northern Michigan jack pine, balsam poplar in Alberta, gypsy moths in Virginia). Authors of these papers caution against generalizing their results beyond the areas studied and stress that further research is needed before management recommendations are developed.

The premise of the Aber, et al. article is that sustainable forest management of National Forests should be based on an understanding of how natural forest ecosystems work. The authors acknowledge that timber harvest is a tool that can be used to selectively restore early successional habitat, reduce fuel loads, and contain pest and pathogen outbreaks in some forests. They identify what they believe to be major ecological considerations that should be incorporated in sound forest management policy:

1. Maintenance of soil quality and nutrient stocks may necessitate adjusting timber harvest rates and leaving more large woody debris on cutover areas.
2. Protection of water quality and yield and prevention of flooding and landslides call for greater attention to the effects of logging roads and the value of buffer zones along streams and rivers.
3. Conservation of forest biodiversity will often require reducing forest fragmentation, avoiding harvest in vulnerable areas such as old growth stands and riparian areas, and restoring natural structural complexity to cutover sites.

4. Planning at the landscape level is needed to address ecological concerns such as biodiversity, water flows, and forest fragmentation.
5. Land managers should be alert for climate-related stresses as well as damage from ground-level ozone, acid rain, and acidification of soils and watersheds.

Also see the Forest Service Response to Opposing View #2 above. The Threemile Restoration and Resiliency Project is consistent with these principles.

Timber Harvest Opposing View #8: "According to a 1998 poll by a firm that has worked for several Republican House members and two presidents, 69 percent of Americans oppose commercial logging on federally owned land. The Forests Service's own poll showed that 59 percent of Americans who expressed an opinion oppose timber sales and other commodity production in national forests."

"Many Americans are surprised to learn that logging is even allowed on public lands. Alas, it has been since the Organic Act of 1897 first authorized logging in America's new forest reserves. That legislation called for watershed protection and a steady supply of timber - what the Forest Service calls 'multiple use.' "

"But the agency has been unable to balance those goals. Often, the integrity of the forest ecosystem has been sacrificed to maximize timber and other commodities. And at taxpayer expense, notes Bernie Zaleha, chair of the End Commercial Logging on Federal Lands (ECL) campaign. The Forest Service lost $2 billion on its logging program from 1992 to 1997, according to the General Accounting Office. It spends more on building roads and preparing sales than it gets back in timber receipts."

Barry, John Byrne. 1999. Stop the Logging, Start the Restoration. Online commentary in Sierra Club's Planet Newsletter June 1999, Vol 6, No. 5. http://www.sierraclub.org/planet/199905/ecl1.asp

FS Response: This is a more than 20-year old opinion commentary published in a 1999 Sierra Club newsletter, advocating an end to commercial timber harvest on Federal lands. The Sierra Club supported the National Forest Protection and Restoration Act (H.R. 1396) that would eliminate commercial logging on Federal public lands. This bill did not become law. It does not provide specific information related to the Threemile Restoration and Resiliency Project; nor does the commenter demonstrate a specific connection to this project.

Timber Harvest Opposing View #9: "Federal auditors have found that the Forest Service frequently fails to assess, prevent or correct environmental damage from logging on the national forests.

After inspecting 12 timber projects in the field from 1995 to 1998, the Agriculture Department's inspector general found that all were deficient and that 'immediate corrective action is needed.

Cushman, John H. Jr. Audit Faults Forest Service on Logging Damage in U.S. Forests. New York Times, February 5, 1999.

FS Response: The referenced audit report was published over 20 years ago on reviews that were conducted 1 to 4 years prior to that in Wisconsin, California, Georgia, Virginia, West Virginia, Mississippi, and Minnesota. The NEPA documents reviewed were completed from 1992 to 1996 (22-27 years ago). Then Forest Service Chief Michael Dombeck used this report to implement improved NEPA practices at all levels of the Forest Service. The Threemile Restoration and Resiliency Project proposal is a result of implementing those and other improved practices. The cited audit is not specific or relevant to Threemile Restoration and Resiliency Project proposal and Environmental Assessment (EA). The Threemile Restoration and Resiliency Project EA was prepared consistent with regulations implementing the National Environmental Policy Act at 40 CFR 1500 – 1508, and Forest Service regulations at 36 CFR 220, and other applicable laws, regulations, and policies.

Timber Harvest Opposing View #10: "Logging on national forest land creates more economic harm than good, according to a recent study by the National Forest Protection Alliance and the Forest Conservation Council.

The 75-page report, three years in the making, notes there are dramatic economic and social losses when forests are logged under the U.S. Forest Service's timber-sale program.

The report, "The Economic Case Against Logging National Forests," states that national forest lands are far more valuable to rural communities when trees are left standing, and that the federal logging program creates billions of dollars in unaccounted costs for communities, businesses, and individuals. This expense comes in addition to timber industry subsidies, which cost American taxpayers approximately $1.2 billion a year."

Higgins, Margot, "National forest logging is bad business, study says"
Posted on CNN.com-Nature, March 16, 2000

http://edition.cnn.com/2000/NATURE/03/16/forest.logging.enn/index.html

FS Response: The citation is a web post about an article published by the National Forest Protection Alliance and the Forest Conservation Council in 2000. In November 2000, the Forest Service responded to the authors with a letter that pointed out "serious analytical flaws" with the report. Analysis conducted for the timber harvest proposed in the Threemile Restoration and Resiliency Project indicates it feasible and financially efficient, see EA at pages 111-115.

The Threemile Restoration and Resiliency Project will not reduce biodiversity or ecosystem function. Rather, the purposes of the project are found at pages 3-8 in the EA, and is briefly described below:

- Restore ponderosa pine ecosystems towards a more heterogeneous forested landscape with a diverse age and size structure (including old growth), understory structure and composition, patch size, and pattern that are resilient to natural disturbances (e.g. fire, insect/disease, climate change).
    - Promote ponderosa pine.
    - Within the project area, make progress changing the fire regime from low frequency high intensity towards one of higher frequency and lower intensity. This is discussed in some detail in the Ashland Post Fire Landscape Assessment 2014 and helps in understanding fire's role on the landscape (pp. 40 and 41).
- Lessen the potential spatial extent and intensity of disturbances (such as high intensity wildfire and high mortality from beetles. Reduce fuel loads to enhance fire suppression capabilities by modifying fire behavior in the Threemile Restoration and Resiliency project area.
- Use the values at risk identified in the Powder River Wildfire Protection Plan (PRWPP, 2016) to help in the planning of vegetation management treatments on NFS lands.
- Provide wood products to contribute to employment and industry in local communities and help support the sustainable supply of timber from National Forest System lands.
- Manage to maintain or improve long-term diversity and quality of habitat for Management Indicator Species (MIS) and selected species as identified in the Forest Plan (such as whitetail deer, mule deer, and grouse);
    - Provide habitat diversity, including habitats associated with standing snags, down wood, non-forested grasslands, shrub-lands, and deciduous woodlands and meet key habitat characteristics for goshawk, whitetail deer, western king bird, and big game

See draft Decision Notice and FONSI for the reason why the Responsible Official is proposing to select Alternative B for implementation, because that alternative provides the best balance of management activities to respond to the purpose and need, while being responsive to issues and public input identified through the analysis. The Responsible Official has adopted all practical means to avoid or minimize environmental harm from Alternative B – Modified Proposed Action. (draft DN/FONSI pages 1-8).

Timber Harvest Opposing View 11: "For much of the past century the Forest Service, entrusted as the institutional steward of our National Forests, focused its management on an industrial-scale logging program. The result of the massive logging and road construction program was to damage watersheds, destroy wildlife habitat and imperil plant and animal species."

"The continued logging of our National Forests also wastes American tax dollars and diminishes the possibilities of future economic benefits. The Forest Service lost $2 billion dollars on the commercial logging program between 1992-1997. Annually, timber produces roughly $4 billion while recreation, fish and wildlife, clean water, and unroaded areas provide a combined total of $224 billion to the American economy. Forests purify our drinking water - 60 million Americans get their drinking water from National Forests. When the dramatic values of ecological goods and services are taken into account, it is clear that protecting National Forests creates more economic benefits than continued logging."

Ehrlich, Anne, Foster, David and Raven, Peter. 2002. Letter to President George W. Bush. http://www.nativeforest.org/campaigns/public_lands/stb_5_30_02.htm

FS Response: The citation is a 14-year old letter written in 2002 to then President Bush calling for an end to commercial logging on the National Forests and encouraging the development of a policy to restore forests.

The Forest Service has since established a policy for using ecological restoration to manage National Forest System lands in a sustainable manner (Forest Service Manual 2020). Ecological restoration focuses on establishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystem sustainability, resilience, and health under current and future conditions. Timber harvest is one of the tools that will be used to achieve the vegetation and fuels objectives. The EA and supporting documentation in the project file demonstrate that the project will improve forest stand conditions.

The Threemile Restoration and Resiliency Project will not reduce biodiversity or ecosystem function. Rather, the purposes of the project are found at pages 3-8 in the EA, and is briefly described below:

- Restore ponderosa pine ecosystems towards a more heterogeneous forested landscape with a diverse age and size structure (including old growth), understory structure and composition, patch size, and pattern that are resilient to natural disturbances (e.g. fire, insect/disease, climate change).
    - Promote ponderosa pine.
    - Within the project area, make progress changing the fire regime from low frequency high intensity towards one of higher frequency and lower intensity. This is discussed in some detail in the Ashland Post Fire Landscape Assessment 2014 and helps in understanding fire's role on the landscape (pp. 40 and 41).
- Lessen the potential spatial extent and intensity of disturbances (such as high intensity wildfire and high mortality from beetles. Reduce fuel loads to enhance fire suppression capabilities by modifying fire behavior in the Threemile Restoration and Resiliency project area.
- Use the values at risk identified in the Powder River Wildfire Protection Plan (PRWPP, 2016) to help in the planning of vegetation management treatments on NFS lands.
- Provide wood products to contribute to employment and industry in local communities and help support the sustainable supply of timber from National Forest System lands.

- Manage to maintain or improve long-term diversity and quality of habitat for Management Indicator Species (MIS) and selected species as identified in the Forest Plan (such as whitetail deer, mule deer, and grouse);
    - Provide habitat diversity, including habitats associated with standing snags, down wood, non-forested grasslands, shrub-lands, and deciduous woodlands and meet key habitat characteristics for goshawk, whitetail deer, western king bird, and big game

See draft Decision Notice and FONSI for the reason why the Responsible Official is proposing to select Alternative B for implementation, because that alternative provides the best balance of management activities to respond to the purpose and need, while being responsive to issues and public input identified through the analysis. The Responsible Official has adopted all practical means to avoid or minimize environmental harm from Alternative B – Modified Proposed Action. (draft DN/FONSI pages 1-8).

Timber Harvest Opposing View #12: "The proposition that forest values are protected with more, rather than less logging, and that forest reserves are not only unnecessary, but undesirable, has great appeal to many with a vested interest in maximizing timber harvest. These ideas are particularly attractive to institutions and individuals whose incomes depend upon a forest land base. (page 2)

"On the other hand, approaches that involve reserving of a portion of the land base, or harvest practices that leave commercially valuable trees uncut to achieve ecological goals, are often considered much less desirable as they reduce traditional sources of timber income. (page 2)

Franklin, Jerry Ph.D., David Perry Ph.D., Reed Noss Ph.D., David Montgomery Ph.D. and Christopher Frissell Ph.D. 2000. Simplified Forest Management to Achieve Watershed and Forest Health: A Critique. National Wildlife Federation Report.

FS Response: The National Wildlife Federation commissioned this article, which is a critique of forest management plans and policies that call for active management of essentially the entire forest area, and which specifically reject the consideration of biological reserves and non-traditional harvest techniques, such as structural retention. Much of the focus of this article is on 'intensive' silvicultural management of old growth forests in the Pacific Northwest.

The Threemile Restoration and Resiliency Project does not propose what the authors are calling Simplified Structure-Based Management. The Threemile Restoration and Resiliency Project proposes active management using of a variety of treatments and treatment methods that include commercial Improvement cutting with and without broadcast burning, commercial thinning activity with small regeneration openings with and without broadcast burning, commercial regeneration treatment activity with and without broadcast burning, planting ponderosa pine, and broadcast burning in ponderosa pine to achieve the purpose and need for the project. Refer to the FS Response to Timber Harvest Opposing View #11, above. Alternative A would treat through commercial and non-commercial activities 4,999 acres, with 7,378 acres not treated (12,377 – 7,378). Alternative B would treat 4,733 acres through commercial and non-commercial activities, with 7,644 acres not treated (12,377 – 7,644). The intent is to be proactive and apply treatments across the landscape to be the most effective. The overall intent for forest vegetation management is to change existing forest vegetation composition and structure to conditions that may be more resilient to disturbances such as outbreaks of pine beetles (MPB and engraver beetle) and wildfires, by creating variable densities of individual trees, providing for clumps and creating openings (ICO concept). Wildfire hazards are discussed in detail in the Fire and Fuel Management section below.

The project will not affect old growth stands and individual large, older trees will be retained within treatment areas. Consistent with the recommendations in the article, the Threemile Restoration and Resiliency Project will retain coarse woody debris, snags (this is not a salvage project), and other forest structure within all vegetation treatment units.

Timber Harvest Opposing View #13: "We do not believe, however, that scientific literature or forestry experience supports the notions that intensively managed forests can duplicate the role of natural forests, or that sufficient knowledge and ability exist to create even an approximation of a natural old-growth forest stand." (page 3).

Franklin, Jerry F. Ph.D. and James K. Agee Ph.D. 2007. "Forging a Science-Based National Forest Fire Policy." Issues in Science and Technology. A National Wildlife Federation publication sponsored by the Bullitt Foundation

FS Response: The above quote provided by the commenter is not contained within the reference provided. This quote is contained within the article cited in #12 above (Franklin, Jerry Ph.D., David Perry Ph.D., Reed Noss Ph.D., David Montgomery Ph.D. and Christopher Frissell Ph.D. 2000. Simplified Forest Management to Achieve Watershed and Forest Health: A Critique. National Wildlife Federation Report). Please see the Forest Service's response to #12.

Find in the EA in the Design Criteria Common to the Action Alternatives at pages 19 and 20:

> No old growth stands were found during field inventory (Sandbak, 2018C). However, small microsites (< 1 acre and generally less than 1/2 acre in size) were detected that met minimum attributes of old growth for age, diameter, and basal area (Greene et. al., 1992). One area was found in each of the following units: 8, 15, 25, 104, 175, and 180. Units 15 and 175 have no proposed treatment in Alternative A and Unit 175 has no treatment in Alternative B. Units 8, 25, and 104 have commercial harvest proposed with no prescribed burning, Unit 180 has commercial harvest and prescribed burning under Alternative A. Under alternative B, units 8, 15, 25, and 104 have commercial harvest proposed with no prescribed burning, Unit 180 has commercial harvest and prescribed burning. Within these small areas in these units, trees ≥ to 17"dbh and ≥ 180 years old will be marked as leave trees to maintain the minimum old growth attributes. During implementation, the Silviculturist will be notified if any additional areas are detected. These areas will be assessed and prescriptions modified to ensure old growth attributes are maintained. *Applicable to Units 8, 25, 104, and 180 in Alternative A and Units 8, 15, 25, 104, 175, and 180 under Alternative B.*
>
> Individual large trees ≥ 17 inches and ≥ 180 years are widely scattered throughout the project area. These typically have flat-tops, small live crowns, thinning crowns, thick fissured orange colored bark, stem rot, with many having old fire scars on base of the tree bole. When encountered in the proposed commercial treatment units, these individual trees (if not a safety hazard) will be marked as leave trees and retained and serve as replacement snags. Prior to burning fuel accumulation (woody debris and duff) will be pulled back as needed from these individual trees. *Applicable to all commercial treatment units with and without RXB PP.*

The article cited here in #13, "Forging a Science-Based National Forest Fire Policy", provides considerations for the development of a national forest fire policy, which is irrelevant to the Threemile Restoration and Resiliency Project.

Timber Harvest Opposing View #14: "Managers on the Wolverine fire still opted to cut one of the largest firelines ever in Washington, logging 114 acres of critical spotted owl habitat and felling big trees — including a giant that had stood for centuries, so large, it was a one-log load on a semi-truck. Steel-tracked heavy equipment tore up fragile ground along streams. Erosive soils unique to the area were bulldozed.

Cut by the U.S. Forest Service with none of the usual environmental review, the firebreak was up to 300 feet wide and stretched more than 50 miles, from the Entiat drainage on the east, to Twin Lakes to the west. Loggers cut enough trees to fill more than 930 logging trucks.

Yet the fire never came anywhere near."

Rushing to stop a fire that never came, Forest Service logged miles of big trees, critical habitat
Seattle Times, August 9, 2016
http://projects.seattletimes.com/2016/collateral-damage/

FS Response: The cited article from the Seattle Times discusses the fire line that was constructed on the Wolverine fire. The fire line was up to 300 feet wide and stretched more than 50 miles and filled more than 930 logging trucks. Information obtained under a Freedom of Information Act request showed Forest Service employees working on the firebreak questioned the logging because of the proximity of the fire and probability of the fire moving. The incident commander in charge and District Ranger made the decision based on extraordinary circumstances which included past fire behavior and the history of chronic drought.

The Threemile Restoration and Resiliency EA and resource specialist reports in the project record describe the potential effects of proposed timber harvest on soils (EA, at pages 86-94 and the Soil Report in the project record); wildlife (EA, at pages 57-71 and the Wildlife Report in the project record); water quality, peak flows, and water yield, (EA, at pages 72 -86 and the Water Resources Report in the project record); rangeland management and noxious weeds (EA at pages 99-104 and the Rangeland Management and Noxious Weeds Report in the project record); fire and fuels (EA at pages 45-56 and the Fire & Fuel Management Report in the project record); transportation system (EA at 108-111 and the Transportation Specialist Report in the project record); forest vegetation (EA at pages 33-45 and the Forest Vegetation Report in the project record); cultural resources (EA at pages 104-108 and the Cultural Resources Report in the project record). Project design, best management practices, and resource protection measures will avoid or minimize potential effects. Harvest will not occur within old growth and coarse woody debris will be left within treatment units to maintain soil productivity and function. No old growth stands were found during field inventory (Sandbak, 2018C). However, small microsites (< 1 acre and generally less than 1/2 acre in size) were detected that met minimum attributes of old growth for age, diameter, and basal area (Greene et. al., 1992). (EA at page 19). Based on the findings presented in the EA, the Forest Service has determined that the project will not have any significant impacts on the environment (Finding of No Significant Impact in the Decision Notice, pages 10-19). We recognize that many of the impacts described in the opinion piece may occur to a small degree; but the EA, DN, and FONSI adequately inform that these impacts are of a context and intensity that are minimal, acceptable, and meet the intent of all applicable laws, regulations and policies.

Timber Harvest Opposing View #15: "This is a lesson for USFS employees (with many pictures) who still think its important to sell dead and dying trees in a post-fire landscape before the trees rot and loose value. Of course logging this rare and important habitat to provide corporate profit opportunities is something an intelligent, professional, caring USFS employee would never consider."

Published by the John Muir project, 2014
http://johnmuirproject.org/forest-watch/post-fire-habitat/

FS Response: This document is an opinion piece on the John Muir Project Island Institute website. The website shows many pictures and has captions "when fires burn in the forest, they burn in a mosaic of low, moderate and high intensity creating a tapestry of heterogeneity which restores and improves the forest ecosystem and promotes and enriches the native biodiversity of these areas. Although it may seem counterintuitive, when older forests burn at the highest intensity some of the best wildlife habitat in the forest is created." The Threemile Restoration and Resiliency Project proposes active management using of a variety of treatments and treatment methods that include commercial Improvement cutting with and without broadcast burning, commercial thinning activity with small regeneration openings with and

without broadcast burning, commercial regeneration treatment activity with and without broadcast burning, planting ponderosa pine, and broadcast burning in ponderosa pine to achieve the purpose and need for the project. Refer to the FS Response to Timber Harvest Opposing View #10 and #11, above. Alternative A would treat through commercial and non-commercial activities 4,999 acres, with 7,378 acres not treated (12,377 – 7,378). Alternative B would treat 4,733 acres through commercial and non-commercial activities, with 7,644 acres not treated (12,377 – 7,644). The intent is to be proactive and apply treatments across the landscape to be the most effective. The overall intent for forest vegetation management is to change existing forest vegetation composition and structure to conditions that may be more resilient to disturbances such as outbreaks of pine beetles (MPB and engraver beetle) and wildfires, by creating variable densities of individual trees, providing for clumps and creating openings (ICO concept). Wildfire hazards are discussed in detail in the Fire and Fuel Management section below.

The project will not affect old growth stands and individual large, older trees will be retained within treatment areas. Consistent with the recommendations in the article, the Threemile Restoration and Resiliency Project will retain coarse woody debris, snags (this is not a salvage project), and other forest structure within all vegetation treatment units.

Timber Harvest Opposing View #16: "One trust fund often cited by critics is the Knutson-Vandenberg (K-V) Fund. This account receives an unlimited portion of timber sale receipts, to be used for reforestation, timber stand improvements, and other resource mitigation and enhancement activities in timber sale areas. Forest Service managers can, therefore, fund their programs from timber sales; in the words of one critic, wildlife managers have an incentive to support timber sales that damage wildlife habitat, because they can use the revenues to mitigate that damage and to keep themselves and their staffs employed.

Gorte, Ross W. Ph.D. "Forest Service Timber Sale Practices and Procedures: Analysis of Alternative Systems." A Congressional Research Service (CRS) report October 30, 1995.,

FS Response: This 20-year old cited literature reference provides an overview of the Forest Service timber sale system (i.e. timber sale contract process) and examines possible changes to the system. The quotes provided by the commenter are listed within the article as concerns that some "interest groups and members of Congress" have expressed about the Forest Service timber sale program in the 15 or more years preceding the publication of the article in 1995.

The Forest Service has since established a policy for using ecological restoration to manage National Forest System lands in a sustainable manner (Forest Service Manual 2020). Ecological restoration focuses on establishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystem sustainability, resilience, and health under current and future conditions. Timber harvest is one of the tools that will be used to achieve the vegetation and fuels objectives. The EA and supporting documentation in the project file demonstrates that the project will improve forest stand conditions.

The Threemile Restoration and Resiliency Project will not reduce biodiversity or ecosystem function. Rather, the purposes of the project are found at pages 3-8 in the EA, and is briefly described below:

- Restore ponderosa pine ecosystems towards a more heterogeneous forested landscape with a diverse age and size structure (including old growth), understory structure and composition, patch size, and pattern that are resilient to natural disturbances (e.g. fire, insect/disease, climate change).
    - Promote ponderosa pine.
    - Within the project area, make progress changing the fire regime from low frequency high intensity towards one of higher frequency and lower intensity. This is discussed in some detail in the Ashland Post Fire Landscape Assessment 2014 and helps in understanding fire's role on the landscape (pp. 40 and 41).

- Lessen the potential spatial extent and intensity of disturbances (such as high intensity wildfire and high mortality from beetles. Reduce fuel loads to enhance fire suppression capabilities by modifying fire behavior in the Threemile Restoration and Resiliency project area.
- Use the values at risk identified in the Powder River Wildfire Protection Plan (PRWPP, 2016) to help in the planning of vegetation management treatments on NFS lands.
- Provide wood products to contribute to employment and industry in local communities and help support the sustainable supply of timber from National Forest System lands.
- Manage to maintain or improve long-term diversity and quality of habitat for Management Indicator Species (MIS) and selected species as identified in the Forest Plan (such as whitetail deer, mule deer, and grouse);
    - Provide habitat diversity, including habitats associated with standing snags, down wood, non-forested grasslands, shrub-lands, and deciduous woodlands and meet key habitat characteristics for goshawk, whitetail deer, western king bird, and big game

See draft Decision Notice and FONSI for the reason why the Responsible Official is proposing to select Alternative B for implementation, because that alternative provides the best balance of management activities to respond to the purpose and need, while being responsive to issues and public input identified through the analysis. Also, in the Design Criteria Common to All the Action Alternatives, a priority for KV and BD funds at pages 29 and 30 in the EA:

> Sale Area Improvement and Hazard Reduction Opportunities
> The following is a list of proposed activities by priority that would have potential to be funded with Knutson-Vandenberg (KV funds) from any commercial sale receipts and Brush Disposal (BD funds). Funding could be a combination of KV, BD and appropriated funds to meet the multiple objectives.
>
> **KV Funds Priority**
> 1. Required Reforestation – Monitoring
> 2. Known Existing Noxious Weed Treatment and Monitoring
> 3. Pre-commercial Treatment within Harvest Units
> 4. Non-commercial Aspen and Woody Draw Treatments
> 5. Directional Tree Felling within Woody Draw Areas
> 6. Broadcast Burning (Forest and Non-Forest)
> 7. Decommission Roads
>
> **BD Funds Priority**
> 1. Burn Landing Piles
> 2. Rehabilitate Landing Piles
> 3. Fireline Construction
> 4. Prescribed Burning

Timber Harvest Opposing View #17: "The fact is, commercial logging doesn't prevent catastrophic fires; it causes them. In the latter part of the 19th century, this was common knowledge. Relentless clearing of forests in the Great Lakes region left huge areas largely devoid of the cooling shade of trees, replacing moist natural forest microclimates with the hotter, drier conditions characterized by stump fields. Flammable logging "slash debris" covered the landscape.

It was in this setting that a massive, cataclysmic fire started near Peshtigo, Wisconsin in 1871. More than 1,200 people were killed. Similar blazes erupted in subsequent years."

Hanson, Chad Ph.D., "The Big Lie: Logging and Forest Fires. " Published in the *Earth Island Journal*, spring 2000 issue http://yeoldeconsciousnessshoppe.com/art6.html

FS Response: The citation is 15-year old opinion commentary written by the then national director of the Sierra Club in support of a bill that was before Congress at the time (National Forest Protection and Restoration Act) to end commercial logging on all federal public lands.

The Threemile Restoration and Resiliency Project proposes active management using of a variety of treatments and treatment methods that include commercial Improvement cutting with and without broadcast burning, commercial thinning activity with small regeneration openings with and without broadcast burning, commercial regeneration treatment activity with and without broadcast burning, planting ponderosa pine, and broadcast burning in ponderosa pine to achieve the purpose and need for the project. The project also includes design criteria to address activity related to slash, unlike the logging activity described in the comment. Refer to the FS Response to Timber Harvest Opposing View #11, above. Alternative A would treat through commercial and non-commercial activities 4,999 acres, with 7,378 acres not treated (12,377 – 7,378). Alternative B would treat 4,733 acres through commercial and non-commercial activities, with 7,644 acres not treated (12,377 – 7,644). The intent is to be proactive and apply treatments across the landscape to be the most effective. The overall intent for forest vegetation management is to change existing forest vegetation composition and structure to conditions that may be more resilient to disturbances such as outbreaks of pine beetles (MPB and engraver beetle) and wildfires, by creating variable densities of individual trees, providing for clumps and creating openings (ICO concept). Wildfire hazards are discussed in detail in the Fire and Fuel Management section below.

The project will not affect old growth stands and individual large, older trees will be retained within treatment areas. Consistent with the recommendations in the article, the Threemile Restoration and Resiliency Project will retain coarse woody debris, snags (this is not a salvage project), and other forest structure within all vegetation treatment units.

Timber Harvest Opposing View #18: "Logging reduces the organic parent material (duff and woody residues) available for soil-formation processes."

Harvey, A. E., M. J. Larsen, and M. F. Jurgensen. 1976. Distribution of Ectomycorrhizae in a Mature Douglas-fir/larch Forest Soil in Western Montana. Forest Science, Volume 22, Number 4, 1 December 1976, pp. 393-398(6)

FS Response: This paper describes the mineral and organic composition of soils developed from limestone parent material at a location 10 miles south of Glacier National Park in Montana. The cited reference actually says, "Increased tree utilization potentially reduces the organic parent materials (litter and woody residues) available for soil-formation processes." The authors conclude, "the parent materials (leaves, litter, and woody residues) for soil organic reserves may require management during timber harvesting and prescribed burning to prevent a subsequent loss in the capacity of soils of this type (limestone base) to support ectomycorrihizal associations in mature Douglas-fir/larch forests." The authors measured active ectomycorrhizae associated with the various organic and mineral components of the soil, and found that five percent of the active ectomycorrhizae occurred in the mineral fraction, 66 percent in the humus, 21 percent in the decayed wood, and 8 percent in the charcoal. From this information, they conclude that soil organic matter is important in the formation and activity of ectomycorrhizae in Douglas fir/larch timber types found in Western Montana. They emphasize that their results should only be applied to mature forests and are not applicable to young or regenerating forests.

The need to provide for organic matter is recognized in the EA, per the recommendations of Graham and others (1994), which are the guidelines cited in the Northern Region Soil Quality Standards (USDA Forest Service 1999). This research paper is a fundamental document in terms of understanding organic matter's role in the ecosystem and how to avoid detrimental impacts.

Resource protection measures for soils in the Threemile Restoration and Resiliency Project are incorporated in the Design Criteria Common to All the Action Alternatives and found at pages 26-28. These design features address soil productivity, hand and mechanical operations, and prescribed and pile burning, and include ensuring future soil productivity, by retaining 3-5 tons per acre of down woody debris greater than three inches in diameter (where available) in treatment units. The EA discusses the effects of the action alternatives on soils on pages 86 to 94.

Timber Harvest Opposing View #19: "Shifting value orientations and priorities have resulted in two conflicting management paradigms concerning natural resources. These paradigms and the societal shifts associated with them have been well articulated by Brown and Harris (1992) and Bengston (1994), as well as others. The two competing natural resource paradigms—derived from the ideas of Gifford Pinchot and Aldo Leopold, respectively— have been labeled the "Dominant Resource Management Paradigm" and the postmodern, "New Resource Management Paradigm" (Table 1). The former view advocates the utilitarian belief that natural resource management ought to be directed toward the production of goods and services beneficial to humans, whereas the latter takes a relatively biocentric view that reflects a more environmentally holistic way of thinking about resources. In terms of implementation, the postmodern paradigm questions the wisdom of top-down decision making (Shindler et al. 1996). More directly, many who identify with this paradigm simply do not trust forest management or research experts—especially those who work for the government (Steel et al. 1992)." (page 29)

"Shifting Public Values for Forest Management: Making Sense of Wicked Problems".
By Dr. Bruce Shindler, *Department of Forest Resources, and* Dr. Lori A. Cramer, *Department of Sociology, Oregon State University*. Reprinted from the *Western Journal of Applied Forestry*, Vol. 14, No. 1, January 1999.
http://andrewsforest.oregonstate.edu/sites/default/files/lter/pubs/pdf/pub2465.pdf

FS Response: The following text is taken for the paper and captured by the following statements and taken from the paper: "This paper examines what shifting social values mean for forest management and research by (1) providing a conceptual context for forest policy decisions, (2) examining relevant problems facing management and research institutions, and (3) characterizing the implication for publicforest management given the nature of wicked problems. Rittel and Webber (1973) called such situations wicked problems (many forest professionals were introduced to the term wicked problems in a provocative 1986 Journal of Forestry article by Allen and Gould who borrowed the phrase from the systems analysis research of Rittel and Webber). Wicked problems result when the boundaries of messes expand to include sociopolitical and moral-spiritual issues (King 1993). These become the kind of problems for which there are no "solutions." In short, strategies for dealing with messes may be relatively straightforward when values are shared; however, wicked problems require a re-examination of management approaches that may push resource professionals beyond traditional problem-solving. The article states the need to recognize that people often mea-sure their interactions with forest agencies by the extent to which their values and concerns—not simply agency politics or the national debate—are given consideration in decisions (Shindler 1997)."

Please see the Forest Service's response to Timber Harvest Opposing View #11. The comment does not have a direct relationship to the proposed action or include supporting reasons for the responsible official to consider. The Threemile Restoration and Resiliency project is designed to be in compliance with the

Custer National Forest Management Plan (1986), and all other law, regulation and policy that relates to the Forest Service and management of National Forest System lands.

Timber Harvest Opposing View #20: "SEC. 3. FINDINGS. Congress finds the following:

Commercial logging has many indirect costs which are very significant, but not easily measured, such as flooding damage and relief of flooding damage through Federal funds, damage to the salmon fishing industry; and harm to the recreation and tourism industries."

H. R. 1494 text. April 4, 2001

FS Response: H.R. 1494 was a bill submitted to Congress over 18 years ago to prohibit commercial logging on federal lands and restore native biodiversity and natural ecological complexes and processes. This bill did not become law.

See the following discussion of water yield and peak flows in the Threemile Restoration and Resiliency Project at pages 72 in the EA:

> Water Yield
> Review of data sources (Troendle et al. 2010; Bosch and Hewlett, 1982, and MacDonald and Stednick, 2003; Omang and Parrett, 1984, Meredith and Kuzara, 2014), and anecdotal evidence suggest that there is a low likelihood for average annual water yield change to result from forest cover removal. Even if a minor change in water yield was to be realized within or adjacent to the project area, this change would be considered beneficial. For these reasons, further analysis of water yield for either of the action alternatives has not been conducted. (Water Resources Report, pages 18-19, project record).
>
> Peak Flows
> In light of the prevalence of other controlling factors (i.e. storm pattern) on peak flows and watershed response to forest cover change outlined under *Water Yield* above and in *Peak Flows* under Existing Condition detailed in the Water Resource Report at pages 13-14, peak flow analysis has been omitted from further analysis. (Water Resources Report, pages 18-19, project record).

Under both action alternatives no measurable change in water quantity is anticipated. Sediment is the only pollutant that may be conveyed to draw bottoms and/or stream channels. Potential effects are variable across sub-watersheds and sub-catchments, with no change in sediment delivery in Home Creek, a possible reduction in sediment delivery in Otter Creek-Newell Creek, and a potential reduction in sediment delivery under low intensity rainfall events and increase in sediment delivery under higher intensity rainfall events in Threemile and Tenmile Creek. Any potential increase in sediment production would be short-lived. Road-related sediment delivery from temporary roads is anticipated to be approximately one ton per year total across the entire project area. (EA at 79 and 84; Water Resources Report, page 24, project record).

There is low potential for watercourse condition compromise as a result of the limited short-term sediment conveyance potential from project implementation. A low percentage of riparian vegetation with the Threemile project area would be subjected to prescribed burning, the majority of that acreage falling in Threemile Creek. No adverse effects are anticipated to riparian areas, wetlands, floodplains, or springs from implementation of project activities. (EA at page 79 and 84; Water Resources Report, page 24, project record).

Water Resources Report notes at pages 16 and 17:

> Fish were not documented in field surveys. Suitable habitats were not present for fish within or near project areas. Because some prairie fish species are adapted to the highly variable and transient flow regimes found in prairie stream ecosystems, it is possible that fish may

intermittently or seasonally use the streams within the project area even where perennial or intermittent flow doesn't persist within defined stream channels. Habitat within the lower reaches (downstream of project areas) could be used by prairie fish species if passage is available from reaches downstream of FS. In addition, habitat conditions, including fish passage, are unknown on stream reaches below the FS boundary. It is possible that, assuming access to these habitats, prairie fish species (e.g. fathead minnows, longnosed dace) found downstream could use these habitats.

Habitat conditions were not suitable for northern redbelly dace, a FS sensitive aquatic species. This species requires stable, low gradient habitats, with copious aquatic vegetation (Stasiak 2006). The species has not been documented in the Tongue River system (Stasiak 2006, MNHP 2015). Habitat conditions are similarly not suitable for Largemouth Bass, the Custer National Forest Plan Management Indicator Species.

Salmon are not native to this area and thus the project won't affect the salmon fishing industry.

Timber Harvest Opposing View #21: "Human tampering with nature has not been without costs. Human manipulation of existing ecosystems has also sometimes had unfortunate consequences."

Hudak, Mike Ph.D. "From Prairie Dogs to Oysters: How Biodiversity Sustains Us" from his book review of The Work of Nature: How the Diversity of Life Sustains Us by Yvonne Baskin, 1997. Newsletter of Earth Day Southern Tier, February/March 1999, p.

FS Response: The citation is a review of the book "The Work of Nature: How the Diversity of Life Sustains Us" by Yvonne Baskin. We agree human beings have manipulated the environment since the beginning of their existence, sometimes with unintended consequences. The Threemile Restoration and Resiliency Project does not propose any of the actions identified in the book review article which included draining of wetlands, introduction of non-native species, or establishing monocultures.

Timber Harvest Opposing View #22: "The Quincy Library Group's (QLG's) fuelbreak strategy represents a giant step backwards from the progressive development of rational fire policies established by the 1995 Federal Wildland Fire Management Policy and Program Review."

"The fact that the QLG admits that its Plan is inconsistent with these new policies (indeed, is almost gleefully defiant of them) says a lot about the credibility of the QLG's self-purported fire management expertise."

"In spite of (or more likely because of) the intensive 'fuels reduction' activities associated with commercial logging, the Fountain Fire was truly catastrophic in its effects."

"Even 'kinder, gentler' commercial logging still inflicts environmental impacts such as eroded topsoil, degraded water quality, destroyed wildlife habitat, and extirpated species that are every bit as much symptoms of forest health problems as large-scale, severe wildfires."

"And after spending millions of dollars creating the SNEP Report, it seems wise to use its information, not ignore it or opportunistically select out statements clearly worded as assumptions, values, or goals which run contrary to factual research findings. The QLG Plan has much more to do with timber extraction than with genuine fire protection, and in that respect, it constitutes more of a forest health threat than a real solution."

"The QLG Bill resembles similar 'panic legislation' that was passed during the early 1970s in which, following some large-scale wildfires in California, Congress allowed the Forest Service to access emergency firefighting funds to conduct 'presuppression' timber sales. Many fuelbreaks were cut in the

Sierras during this period, and while costs rapidly rose into tens of millions of dollars, most of these fuelbreaks failed to perform adequately during wildfire suppression incidents. Congress quickly had to take away this funding source from the Forest Service. What has become of these old fuelbreaks? Almost without exception, the agency failed to monitor or maintain them, and in a modern-day version of 'cut and run' logging, many of these old fuelbreaks have converted to chaparral brush and 'dog-hair' thickets … a much more flammable vegetation type than the original forest cover. The QLG Bill appears to be 'deja vu' without evidence of Congress or the QLG being aware of this history of previous fuelbreak programs."

FS Response: The cited article is opinion commentary that criticizes H.R. 858, the Quincy Library Group Forest Recovery and Economic Stability Act of 1997, which has no relevance to the Threemile Restoration and Resiliency Project. H.R. 858 directed the Secretary of Agriculture to conduct a pilot project on Federal lands on the Plumas, Lassen, and Tahoe National Forests in California to demonstrate the effectiveness of specified fire resiliency resource management activities recommended by the Quincy Library Group. The bill did not pass into law.

Timber Harvest Opposing View #23: "An unprecedented rape of Mother Nature from the 1880s to the 1940s completely changed the wooded landscape of the northern Great Lakes region of America as well as the society and ecology forevermore."

Monte, Mike, Cut and Run: Loggin' Off the Big Woods Paperback – June 1, 2002
https://www.amazon.com/Cut-Run-Loggin-Off-Woods/dp/0764315293/ref=cm_cr_arp_d_product_top?ie=UTF8

FS Response: The comment is a quote from the book *Cut-Run-Loggin-Off*-Woods. The link provided provides a summary as quoted "In this time of empire building, logging towns grew like weeds around sawmills and often died when the last tree was cut. The people living there called it "cut and run." This fascinating book presents true-life photographic images of the loggers and the people they touched. Here we see the lumberjacks and river pigs who began the work, railroad loggers who extended the range and types of logs available, and a close-up look at one town in the wilderness. With hard work written across their faces, these men and women who dedicated their lives to the logging industry earn the respect of today's readers through the dynamic photographs and poignant stories related here. To build American towns, they toiled to make the lumber available; they succeeded and became legendary." The paperback is an opinion piece.

Threemile Restoration and Resiliency Project activities are designed to be in compliance with the Custer National Forest Management Plan (1986), and all other law, regulation and policy that relates to the Forest Service and management of National Forest System lands.

Timber Harvest Opposing View #24: "Since the 'New Perspectives' program of the early 1990s, the agency has tried to dodge public opposition to commercial logging by using various euphemisms, such as this gem from the Siskiyou National Forest: Clearcuts are called 'minimum green tree retention units.' Accordingly, Forest Service managers have believed that if they simply refer to logging as 'thinning,' or add the phrases 'fuels reduction' or 'forest restoration' to the title of their timber sale plans, then the public will accept these projects at face value, and business-as-usual commercial logging can proceed. In the face of multiple scandals and widespread public skepticism of the Forest Service's credibility, it seems that only Congress is buying the agency's labeling scheme."

Ingalsbee, Timothy Ph.D. "Logging without Limits isn't a Solution to Wildfires" published in the Portland Oregonian, August 6, 2002.

FS Response: The cited article is opinion commentary, written over 14 years ago. In the paragraph following the one the commenter cites, the author writes, "There does appear to be growing consensus among forest managers, fire scientists, and environmentalists, too, on the need for some kind of carefully targeted tree thinning as one tool for reducing wildfire hazards. But the consensus centers on the need to thin the 'thin stuff' – brush and understory trees – not the 'thick stuff' – large diameter mature and old growth trees." The author is correct that research suggests thinning can be an effective tool for reducing fire intensity and severity within treated areas.

See the FS Response to Opposing Views # above, as well as the purpose and need described in the EA for the Threemile Restoration and Resiliency Project. The FS proposes active management using of a variety of treatments and treatment methods that include commercial Improvement cutting with and without broadcast burning, commercial thinning activity with small regeneration openings with and without broadcast burning, commercial regeneration treatment activity with and without broadcast burning, planting ponderosa pine, and broadcast burning in ponderosa pine to achieve the purpose and need for the project. Refer to the FS Response to Timber Harvest Opposing View #11, above. Alternative A would treat through commercial and non-commercial activities 4,999 acres, with 7,378 acres not treated (12,377 – 7,378). Alternative B would treat 4,733 acres through commercial and non-commercial activities, with 7,644 acres not treated (12,377 – 7,644). The intent is to be proactive and apply treatments across the landscape to be the most effective. The overall intent for forest vegetation management is to change existing forest vegetation composition and structure to conditions that may be more resilient to disturbances such as outbreaks of pine beetles (MPB and engraver beetle) and wildfires, by creating variable densities of individual trees, providing for clumps and creating openings (ICO concept). Wildfire hazards are discussed in detail in the Fire and Fuel Management section below.

The project will not affect old growth stands and individual large, older trees will be retained within treatment areas. Threemile Restoration and Resiliency Project will retain coarse woody debris, snags (this is not a salvage project), and other forest structure within all vegetation treatment units.

The project identifies lessening the potential spatial extent and intensity of wildfire disturbances as a key purpose and need (see Scoping document; EA at pages 6-7). The Ashland Ranger District and portions of the Three Mile project area have experienced several wildfires, since 2000, that are outside the historic range of natural variability in both extent and intensity. Sartin Draw (2017), Ash Creek (2012), Taylor Creek (2012), Watt Draw (2006), Tobin (2000) and Stag (2000) are all excellent examples of wildfires ranging in size from approximately 20,000 acres to over 100,000 acres with extensive stand replacement in a ponderosa pine community (Ash Creek, Watt Draw and Tobin all affected the Three Mile project area)(See the 2014 Ashland Post Fire Landscape Assessment). The Three Mile project treatments will reduce the potential for large scale, intense wildfires within the project area and help to address wildfire risk in the WUI as described by the Powder River CWPP.

Timber Harvest Opposing View #25: "Otherwise, reporters play into the hands of powerful interests who seek to profit from public perceptions of wildland fires as "catastrophes" and "crises." For example: Government agencies who gain enormous powers to fight fires without any fiscal constraint or public accountability, and private logging companies who gain windfall profits from "salvage" logging burned trees with little or no regulatory restraint, both under self-proclaimed "states of emergency." (pg 6)

Ingalsbee, Timothy Ph.D. September 2007, "**A Reporter's Guide to Wildland Fire**." http://www.fusee.org/Resources/Documents/-Reporters%20Guide%202007.pdf

FS Response: The cited article is a 12 year old opinion commentary that advocates an effort to change the debate about wildland fire prevention and management by suggesting "new story angles, expanded

information sources, better word choices, and more appropriate questions for agency spokespersons." This citation is not a published scientific source and is not applicable to the Threemile project.

Timber Harvest Opposing View #26: "Logging-truck traffic in the Kimsquit Valley in British Columbia resulted in a 78% reduction in use of the "Zone of Hauling Activity" by radio collared bears compared to non-hauling periods (16). For 14 hours/day, 3%-23% of each bear's home range was unavailable to them because of disturbance."

"Wolverines seem to have been most affected by activities that fragment and supplant habitat, such as human settlement, extensive logging, oil and gas development, mining, recreational developments, and the accompanying access.

Jalkotzy, M. G., Ross, P. I., and Nasserden, M. D. The effects of Linear Developments on Wildlife: A Review of Selected Scientific Literature. Report: 1-354. 1997. Calgary, Prep. For Canadian Association of Petroleum Producers. Arc Wildlife Services Ltd

FS Response: This document is a review of the scientific literature on the effects of linear developments on wildlife, especially the types created by the oil and pipeline industries in western Canada. No suitable habitat exists for grizzly bear and wolverine within the project area or its area of influence (see the Wildlife section and Table 13 in the EA at page at page 59).

Timber Harvest Opposing View #27: "Fear of wildfire is heavily used to sell these forest "restoration" schemes. Logging has not been proven, in practice, to reduce fire frequency or intensity. Historically, the largest, most destructive blazes, like the Tillamook conflagration, were caused from logging or fueled by slash. Unlogged forests, cool and shaded, are typically more fire resistant than cut over, dried-up stands choked with slash and weeds.

Large-scale logging (by any name) has devalued our forests, degraded our waters, damaged soils, and endangered a wide variety of plants and animals. How will the current round of politically and environmentally propelled 'restorative' logging proposals differ, in practice, from past logging regimes?"

Keene, Roy Restorative Logging? "More rarity than reality" Guest Viewpoint, the Eugene Register Guard March 10, 2011

FS Response: The article is opinion commentary that was printed in an Oregon newspaper. The Tillamook Burn that the author refers to was a series of large forest fires in the northern Oregon Coast Range mountains 50 miles west of Portland. It began in 1933 and struck at six-year intervals through 1951, burning a combined total of 355,000 acres. The largest of the four fires started in August 1933 within a logging operation. Near record weather conditions with a 104º temperature and relative humidity of about 20 percent combined with dry fuel conditions contributed to the rapid growth and high intensity and severity of the fire. The subsequent fires in 1939, 1945, and 1951 primarily reburned the area affected by the first fire.

The FS proposes active management using of a variety of treatments and treatment methods that include commercial Improvement cutting with and without broadcast burning, commercial thinning activity with small regeneration openings with and without broadcast burning, commercial regeneration treatment activity with and without broadcast burning, planting ponderosa pine, and broadcast burning in ponderosa pine to achieve the purpose and need for the project. Refer to the FS Response to Timber Harvest Opposing View #11, above. Alternative A would treat through commercial and non-commercial activities 4,999 acres, with 7,378 acres not treated (12,377 – 7,378). Alternative B would treat 4,733 acres through commercial and non-commercial activities, with 7,644 acres not treated (12,377 – 7,644). The intent is to be proactive and apply treatments across the landscape to be the most effective. The overall intent for forest vegetation management is to change existing forest vegetation composition and structure to conditions that may be more resilient to disturbances such as outbreaks of pine beetles (MPB and engraver beetle) and wildfires, by creating variable densities of individual trees, providing for clumps and

creating openings (ICO concept). Wildfire hazards are discussed in detail in the Fire and Fuel Management section below.

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The project identifies lessening the potential spatial extent and intensity of wildfire disturbances as a key purpose and need (see Scoping document; EA at pages 6-7). The Ashland Ranger District and portions of the Three Mile project area have experienced several wildfires, since 2000 that are outside the historic range of natural variability in both extent and intensity. Sartin Draw (2017), Ash Creek (2012), Taylor Creek (2012), Watt Draw (2006), Tobin (2000) and Stag (2000) are all excellent examples of wildfires ranging in size from approximately 20,000 acres to over 100,000 acres with extensive stand replacement in a ponderosa pine community (Ash Creek, Watt Draw and Tobin all affected the Three Mile project area)(See the 2014 Ashland Post Fire Landscape Assessment). The Three Mile project treatments will reduce the potential for large scale, intense wildfires within the project area and help to address wildfire risk in the WUI as described by the Powder River CWPP.

Timber Harvest Opposing View #28: "Timber harvesting operations affect hydrologic processes by reducing canopy interception and evapotranspiration. Many studies have documented changes in soil properties following tractor yarding (Stone, 1977; Cafferata, l983), and low-ground-pressure skidding (Sidle and Drlica, 1981). More recently, researchers have evaluated cable yarding (Miller and Sirois, 1986; Purser and Cundy, 1992). In general, these studies report decreased hydraulic conductivity and increased bulk density in forest soils after harvest."

Keppeler, Elizabeth T. Robert R. Ziemer Ph.D., and Peter H. Cafferata. Effects of Human-Induced Changes on Hydrologic Systems. An American Water Resources Association publication, June 1994

FS Response: This literature is an excellent source of data for analyzing effects of timber harvest on soils in the Pacific Northwest. Although the terrain and climate are different than that of the Threemile Restoration and Resiliency Project, the general concepts of effects on soils from timber harvest activities are applicable and well understood by the IDT soil scientist and the Responsible Official.

There is adequate information in the EA in both the soils section and the water resources section, which discuss the effects the proposed activities will have on hydrologic systems. Increased bulk density and decreased hydraulic conductivity can occur with the ground-based harvest planned for the project; however, project design features will minimize these potential effects.

See the following discussion of water yield and peak flows in the Threemile Restoration and Resiliency Project at pages 72 in the EA:

> Water Yield
> Review of data sources (Troendle et al. 2010; Bosch and Hewlett, 1982, and MacDonald and Stednick, 2003; Omang and Parrett, 1984, Meredith and Kuzara, 2014), and anecdotal evidence suggest that there is a low likelihood for average annual water yield change to result from forest cover removal. Even if a minor change in water yield was to be realized within or adjacent to the project area, this change would be considered beneficial. For these reasons, further analysis of water yield for either of the action alternatives has not been conducted. (Water Resources Report, pages 18-19, project record).
>
> Peak Flows
> In light of the prevalence of other controlling factors (i.e. storm pattern) on peak flows and watershed response to forest cover change outlined under *Water Yield* above and in *Peak Flows*

> under Existing Condition detailed in the Water Resource Report at pages 13-14, peak flow analysis has been omitted from further analysis. (Water Resources Report, pages 18-19, project record).

Under both action alternatives no measurable change in water quantity is anticipated. Sediment is the only pollutant that may be conveyed to draw bottoms and/or stream channels. Potential effects are variable across sub-watersheds and sub-catchments, with no change in sediment delivery in Home Creek, a possible reduction in sediment delivery in Otter Creek-Newell Creek, and a potential reduction in sediment delivery under low intensity rainfall events and increase in sediment delivery under higher intensity rainfall events in Threemile and Tenmile Creek. Any potential increase in sediment production would be short-lived. Road-related sediment delivery from temporary roads is anticipated to be approximately one ton per year total across the entire project area. (EA at 79 and 84; Water Resources Report, page 24, project record).

There is low potential for watercourse condition compromise as a result of the limited short-term sediment conveyance potential from project implementation. A low percentage of riparian vegetation with the Threemile project area would be subjected to prescribed burning, the majority of that acreage falling in Threemile Creek. No adverse effects are anticipated to riparian areas, wetlands, floodplains, or springs from implementation of project activities. (EA at page 79 and 84; Water Resources Report, page 24, project record).

Water Resources Report notes at pages 16 and 17:

> Fish were not documented in field surveys. Suitable habitats were not present for fish within or near project areas. Because some prairie fish species are adapted to the highly variable and transient flow regimes found in prairie stream ecosystems, it is possible that fish may intermittently or seasonally use the streams within the project area even where perennial or intermittent flow doesn't persist within defined stream channels. Habitat within the lower reaches (downstream of project areas) could be used by prairie fish species if passage is available from reaches downstream of FS. In addition, habitat conditions, including fish passage, are unknown on stream reaches below the FS boundary. It is possible that, assuming access to these habitats, prairie fish species (e.g. fathead minnows, longnosed dace) found downstream could use these habitats.
>
> Habitat conditions were not suitable for northern redbelly dace, a FS sensitive aquatic species. This species requires stable, low gradient habitats, with copious aquatic vegetation (Stasiak 2006). The species has not been documented in the Tongue River system (Stasiak 2006, MNHP 2015). Habitat conditions are similarly not suitable for Largemouth Bass, the Custer National Forest Plan Management Indicator Species.

All harvest units would comply with the Northern Region Soil Quality Standards (USDA Forest Service 1999). A comprehensive, site-specific analysis of potential impacts to water and soil resources is included in the EA.

Timber Harvest Opposing View #29: "Looking at the study on a larger scale, the potential for changes caused by logging is great. Absence of trees could influence water temperature by altering available sunlight, conductivity by changing the amount of organic matter that collects in the vernal ponds, or pH if the logging process deposits foreign residues to the area. Also, heavy equipment used to harvest the timber has the potential to alter the terrain."

Klein, Al. 2004. Logging Effects on Amphibian Larvae Populations in Ottawa National Forest. University of Notre Dame post-graduate thesis July, 2004.

FS Response: Although the title of the cited article infers that the effects of logging were studied, only 'pre-logging' data was collected in seven vernal ponds in Michigan's Upper Peninsula. No post-logging

data was collected; therefore, no conclusions regarding the effects of logging on amphibians can be drawn from this article that was written by a college student attending the University of Notre Dame. The second quote provided by the commenter is an unsupported assumption by the author. In his assumptions, the author also fails to define the harvest type and logging method to be used. Silvicultural practices vary depending on the objectives to be achieved.

The spotted salamander is found in the eastern United States and Canada; thus the Threemile Restoration and Resiliency Project area in south eastern Montana is far outside its range. Resource protection measures for the Threemile Restoration and Resiliency Project include the prohibition of timber harvest activities within stream buffers (DN, Appendix A), thus there will be no disturbance to riparian areas or change in stream shade. There are no ponds within or near proposed treatment areas. Timber harvest will have no detrimental effects to water yield (EA, pages 3-115 to 3-134).

Timber Opposing View #30: "In hopes of ending conflicts over "multiple use," an independent scientific committee has proposed that "ecological sustainability" should become the principal goal in managing the U.S. national forests and grasslands, which since 1960 have been under a congressional mandate to serve industry, recreation, and conservation all at once."

Mann, Charles C. Ph.D. and Mark L. Plummer Ph.D. "Call for 'Sustainability' in Forests Sparks a Fire" Science 26 March 1999: Vol. 283. no. 5410, pp. 1996 – 1998.

FS Response: The cited article highlights the debate over the management of national forests. In 1997, the Clinton administration assembled a scientific advisory panel to provide scientific and technical advice on revising National Forest Management Act (NFMA) forest planning regulations. According to the article, the panel's recommendation was that ecological sustainability should be the principal goal in managing the national forests.

Threemile Restoration and Resiliency Project is an integrated resource project that emphasizes ecological resilience and sustainability as described in the purpose and need, desired condition and proposed action in the EA, at pages 2-14, the very emphasis of the panel's recommendations.